

Claims

- [c1] 1. A delay circuit for providing an output signal according to an input signal so that when the level of the input signal changes from a first input level to a second input level, the level of the output signal changes from a first output level to a second output level after a predetermined delay time, the delay circuit comprising:
- a voltage generator for providing a reference voltage when the input signal changes from the first input level to the second input level;
 - a current generator for providing a charging current when the input signal changes from the first input level to the second input level;
 - a feedback control module comprising a control end and two transmit ends, the control end for receiving a control signal, and the feedback control module able to transmit the charging current from the current generator between the two transmit ends, and the feedback control module changing the proportion between a cross voltage of the two transmit ends and the current between the two transmit ends;
 - a storage unit electrically connected to the current generator for receiving the charging current from the feed-

back control module and generating a corresponding charging voltage;
a feedback circuit electrically connected between the storage unit and the control end of the feedback control module to provide the control signal according to the charging voltage; and
an amplifier having two input ends electrically connected to the storage unit and the current generator in order to receive respectively the reference voltage and the charging voltage, the amplifier able to change the level of the output signal from the first output level to the second output level when the relationship between the reference voltage and the charging voltage changes.

[c2] 2.The delay circuit of claim 1 wherein the closer the charging voltage is to the reference voltage, the less charging current is transmitted from the feedback control module to the storage unit according to the control signal by the feedback circuit.

[c3] 3.The delay circuit of claim 1 wherein another transmit end of the feedback control module is electrically connected to a stable direct current (DC) voltage, and when the charging current transmitted to the storage unit is close to 0, a cross voltage between the transmit end and the control end of the feedback control module substantially maintains a predetermined value instead of 0.

- [c4] 4.The delay circuit of claim 1 wherein the feedback control module comprises a metal-oxide semiconductor (MOS) transistor with a gate electrically connected to the control end, and a source and a drain electrically connected to the two transmit ends.
- [c5] 5.The delay circuit of claim 1 wherein the current generator comprises a current mirror for generating the charging current and a reference current and maintaining a predetermined proportion between the charging current and the reference current, and the voltage generator generates the reference voltage according to the reference current.
- [c6] 6.The delay circuit of claim 1 wherein the storage unit is a capacitor being a MOS transistor with a source and a drain connected to each other.
- [c7] 7.The delay circuit of claim 1 wherein when the input signal recovers from the second input level to the first input level, the delay circuit changes the output signal from the second output level to the first output level.
- [c8] 8.The delay circuit of claim 7 wherein when the input signal recovers from the second input level to the first input level, the feedback circuit stops transmitting the current between the two transmit ends.

